

REMARKS

The last Office Action has been carefully considered.

It is noted that the claims are rejected under 35 U.S.C. 103(a) over the German patent document to Callihan in view of the patent document to Jorn, et al, Blum, et al, Muller or Japanese patent document.

The specification is rejected to and the claims are also rejected under 35 U.S.C. 112.

In connection with the Examiner's objection to the specification, the specification has been amended correspondingly. It is believed that the grounds for these objections are therefore no longer applicable and should be withdrawn.

In connection with the Examiner's question with respect to the inventive method carried out "without interruption of individual casting process" applicant wishes to make the following remarks.

During the preparation of the metal quantity for each casting to be cast, a multiple of the metal quantity of the final casting is required. The reason is the occurrence of a metal quantity deficit in the casting

retort, which makes impossible a proper-quality manufacture of the casting. This is the case when such liquid metal quantity is provided, which must correspond to the finished casting. The basic causes of the material losses are however not limited to the interior of casting retort (for example untightness), but for example in the event of occurring untightness of the casting tools. In contrast to the known casting process, in accordance with the inventive method, the manufacture of light metal castings requires an automatic tool ventilation. This can lead in certain conditions to untightness and thereby material losses caused by it. The exact loss quantity can not be determined in advance.

In the patent to Brown applied by the Examiner, in particular in column 2, line 35, the metal quantity is not specified exactly. The control of the preparation quantity is performed by means of the dosing valve 38. The quantity of the liquid metal which is contained in the dosing chamber 36 corresponds to the material demand in the die cavity 18, as explained on page 2, column 2, paragraph 4 of the reference. Material losses are not taken into consideration.

A further important reason for the supply of the multiple quantity is that in accordance with the supply type provided in the method disclosed in the patent to Brown, a suction action is produced due to the high injection speed of the light metal, which introduces the components of

the protective gas into the material. Such introduction is caused by the adhesive friction of the contact surfaces between the liquid metal melt and the inner surfaces of the supply devices. The speed of the melt on the contact surfaces is thereby smaller than in the interior of the melt. Due to the thusly produced negative pressure and the resulting introduction of the protective gas, unusable metal castings are manufactured. Therefore a continuous monitoring of the operator during the course of the casting process is absolutely necessary.

From the description of the method it is clear, that with automatic cyclical supply of metal quantities, per each supplied metal quantity a multiple of the metal quantity required for each light metal casting is provided.

In the casting retort, after the manufacture of each casting, always a rest of the supplied metal quantity is retained, which is completed by the newly supplied metal quantity within the next cycle. The available melting temperature is detected by the temperature sensor, and at reaching of the predetermined melting temperature, a signal is supplied to the valve control for automatically releasing the supply of the liquid metal into the die cavities of the casting mold.

Claim 1 specifically defines that losses of a quantity of the light metal in the casting retort are compensated, and also as now specifically stated, it is done during the casting process and also carried out to prevent inflow of a protective gas.

It is believed to be clear that the new features of the present invention which are now defined in the amended claim 1, are not disclosed in the reference and also can not be derived from it as a matter of obviousness.


In connection with the Examiner's question with respect to claim 5, applicant wishes to provide the following explanations. The solidification of the liquid light metal is performed not by one-time movement of the tool device, but instead substantially is performed at this time point. As explained on page 9 of the specification, the rigidification process is performed by withdrawal of the thermal energy through the base support 5. it is further stated that the withdrawal of the thermal energy is performed by automatic withdrawal of the casting mold 19 from the feed system 4. which constitutes a secondary supporting tool. The rigidification process is performed at the beginning of the withdrawal.

In view of the above presented remarks and amendments, it is believed that the claims currently on file should be considered as patentably distinguishing over the art and should be allowed.

Reconsideration and allowance of the present application is most respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 631-549-4700).

Respectfully submitted,



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